

REMARKS

Applicants thank the Examiner for the thorough consideration given the present application. Claims 1-17 are pending. Claims 1, 3, 12, 13, 15, and 17 are amended. Claims 1 and 16 are independent. The Examiner is respectfully requested to reconsider the rejections in the Office Action in view of the amendments and remarks set forth herein.

Reasons for Entry of Amendments

At the outset, it is respectfully requested that this Amendment be entered into the Official File in view of the fact that the amendments to the claims automatically place the application in condition for allowance.

In the alternative, if the Examiner does not agree that this application is in condition for allowance, it is respectfully requested that this Amendment be entered for the purpose of appeal. This Amendment was not presented at an earlier date in view of the fact that the Examiner has cited an additional reference and new grounds for rejection in this Office Action, and the rejection was a final rejection.

Rejections under 35 U.S.C. §103(a)

Claims 1-17 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Spector (U.S. 6,017,049) in view of O'Neill, Jr. (U.S. 6,069,588) and in further view of Heddle et al. (U.S. 5,703,794). This rejection is respectfully traversed.

Amendments to Independent Claims 1 and 16

While not conceding the appropriateness of the rejections, but merely to advance prosecution of the instant application, independent claims 1 and 16 are amended herein to recite combinations of elements directed to a radio communication system for a vehicle, including a radio communication apparatus mounted on at least one helmet to be worn by a passenger of said vehicle and including at least a speaker, a microphone and a radio wave transmitter-receiver powered by a built-in battery; and a repeating apparatus mounted on said vehicle side for communicating with said radio wave transmitter-receiver, said radio communication apparatus mounted on said helmet communicating with a second helmet through said repeating apparatus.

Full support radio communication apparatus mounted on at least one helmet 70 to be worn by a passenger of said vehicle and including at least a speaker, a microphone and a radio wave transmitter-receiver 73A powered by a built-in battery 803; and a repeating apparatus 74A mounted on said vehicle side for communicating with said radio wave transmitter-receiver 73A, said radio communication apparatus mounted on said helmet 70 communicating with a second helmet 70 through said repeating apparatus 73A, can be found in the specification, for example, in the paragraph beginning on page 6, lines 4-18. See also FIGS. 1 and 2.

As pointed out on page 23, lines 4-14 of the specification, the present invention achieves the following effects:

(1) Since the radio communication apparatus provided on the helmets for individual passengers communicate with each other through a repeating apparatus carried on a vehicle, it is required only to provide each of the radio communication apparatus with a minimum transmission capacity required for communication over a very short distance with the repeating apparatus. Thus, a reduction in the size and the weight of the radio communication apparatus and a reduction of the power consumption are allowed.

(2) Since a transmitter-receiver of each of the radio communication apparatus is mounted at the center of a rear portion of a helmet, the situation where the mounting feeling of the helmet is deteriorated or handling of the helmet becomes difficult does not occur.

In contrast to the present invention as set forth in claims 1 and 16, none of the references cited by the Examiner including Spector, O'Neill, Jr., and Heddle et al. teaches or suggests a helmet to be worn by a passenger of said vehicle and including at least a speaker, a microphone and a radio wave transmitter-receiver powered by a built-in battery. For example, Spector merely discloses a interactive safety helmet powered by an external battery pack mounted on the bicycle frame or in a back pack. (See Spector Fig. 5, and column 4, lines 51-61). Both of O'Neill, Jr., and Heddle et al. are silent about a helmet.

Further, in contrast to the present invention as set forth in claims 1 and 16, none of the references cited by the Examiner including Spector, O'Neill, Jr., and Heddle et al. teaches or suggests a radio communication apparatus mounted on a helmet communicating with a second helmet through said repeating apparatus mounted on the vehicle. For example,

Spector merely discloses helmet-to-helmet communications. Both of O'Neill, Jr., and Heddle et al. are silent about a helmet.

Dependent Claims 4 and 12-14

Furthermore, in the rejection of claims 12 and 13 of the present invention, the Examiner argues that arrangement of the AAA battery and the circuit board claims are obvious based on the teachings of Spector, and in rejecting claims 4 and 14 the Examiner argues that mounting the transceiver at the rear center of the helmet is an obvious matter of design choice. However, the Applicants respectfully disagree.

The Spector helmet is powered by 6 volt battery housed externally to the helmet. Spector also communicates helmet-to-helmet since there is no repeating apparatus. Thus, since Spector does not employ a separately mounted repeating apparatus, a more powerful 6 volt battery is used to power the helmet. Since the 6 volt battery of Spector certainly is larger and heavier than the AAA battery of the present invention, the Spector battery is mounted externally.

Clearly, Spector did not face the problems that the present inventors faced, namely how to lighten the radio transmitter-receiver and arrange the circuit board and battery accommodation section in the helmet such a manner that the mounting feeling of the helmet is not deteriorated. Thus the Applicants respectfully submit that dependent claims 4 and 12-14 set forth allowable subject matter that is not taught or suggested by the references cited by the Examiner.

In summary, it is respectfully submitted that the cited references, taken alone or in combination, fail to teach or suggest the novel combination of elements recited in independent claims 1 and 16 of the present application. Accordingly, independent claims 1 and 16, as well as the claims depending therefrom, are in condition for allowance; and reconsideration and withdrawal of the rejections under 35 U.S.C. §103(a) are, therefore, respectfully requested.

CONCLUSION

Since the remaining patents cited by the Examiner have not been utilized to reject claims, but merely to show the state of the art, no comment need be made with respect thereto.

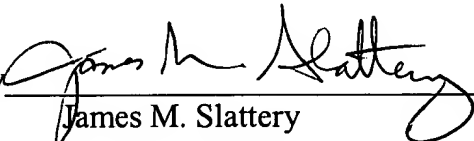
All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. It is believed that a full and complete response has been made to the outstanding Office Action, and that the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone Carl T. Thomsen (Reg. No. 50,786) at (703) 205-8000.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for

any additional fees required under 37 C.F.R. §§1.16 or 1.17, particularly extension of time fees.

Respectfully submitted,
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